

US EPA RECORDS CENTER REGION 5



454495



water quality
control
at...

Robert Brothers Company



Water quality control

The challenge and solution

Hobart Brothers Company has been active in water quality control and management for five years -- starting in early April 1965.

The major effort centered in our Westbrook, Troy, Ohio plant where consumable products for the arc welding market are manufactured.

The first objective was to completely eliminate all liquid waste that might be discharged into the Miami River.

Our first step was to analyze the manufacturing processes which contribute to the generation of liquid pollutants. It was determined through the initial study that the majority of our pollutants were generated by the use of sulfuric acid in removing mill scale from green steel rod as received from the steel mills.

The second highest contributor to the liquid pollutants generated surrounds the copper plating procedure used in the manufacture of CO₂ welding wire. This pollutant is in the form of copper sulfate.

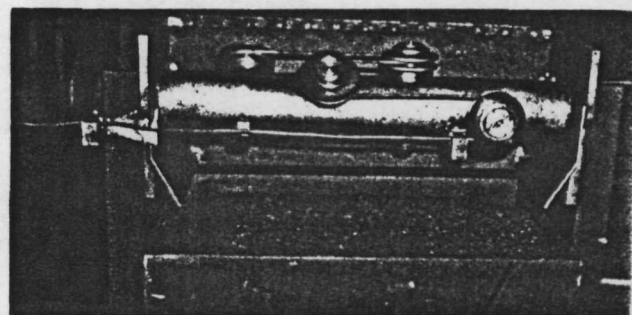
The third major area of pollutants is the use of animal fat base wire drawing lubricants. These lubricants are used in the final drawing process in the manufacture of CO₂ welding wire.

The fourth major area of liquid pollutants centers in the manufacturing of stick electrodes for electric arc welding. The majority of the pollutants generated in this area come from suspended solids in the cleaning of our mixing and slugging operation.

After completing the study outlined at left, we proceeded to modify our manufacturing processes to minimize the amount of pollutant generated. This was accomplished in the following steps:

First, in order to eliminate the use of sulfuric acid for removing the mill scale, Hobart Brothers Company developed a unique dry descaling method. This method eliminates the need for acid treatment of the green rod prior to the drawing operation in the stick electrode area. This development alone eliminated the use of sulfuric acid which was a tremendous contributor to our liquid pollutant generation.

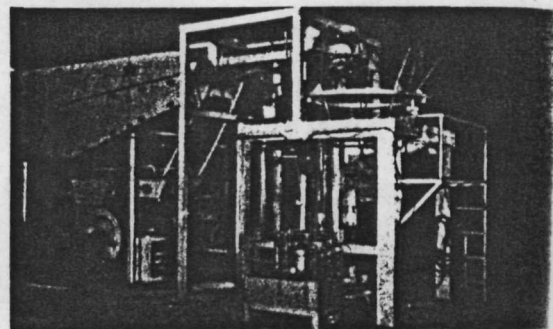
Secondly, using the technology developed for dry descaling of stick electrode core wire, our staff proceeded to design and build two new processing lines which utilize dry descaling.



Raw wire is "bent" four times to cause mill scale to flake off.

removal of up to 95% of the mill scale. Combining this operation with a cold hydrochloric acid dip for the removal of the retained 5% scale, gave the Hobart Brothers Company the capability of completely eliminating all sulfuric acid descaling which had been the prime generator of liquid pollutants in our Westbrook facility.

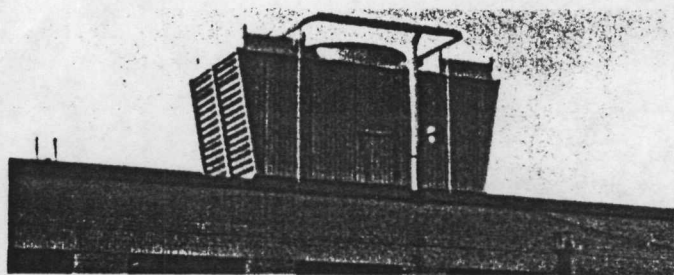
Third, a great deal of effort was spent in



Rod collector end of 90' long continuous steel rod cleaning line which cuts in-plant iron sulfate generation a hundred fold.

veloping procedures for the use of synthetic wire drawing lubricants in place of the animal fat base materials. This program is proceeding on schedule and in the next few months it is hoped that the entire Westbrook facility will be utilizing the new synthetic materials.

Fourth, at the present time, the entire mixing and slugging operation is being revamped which will eliminate all suspended solids contributing to the liquid waste disposal problem at the Westbrook plant. This will be done by the use of a solids filter and a complete recirculation system.

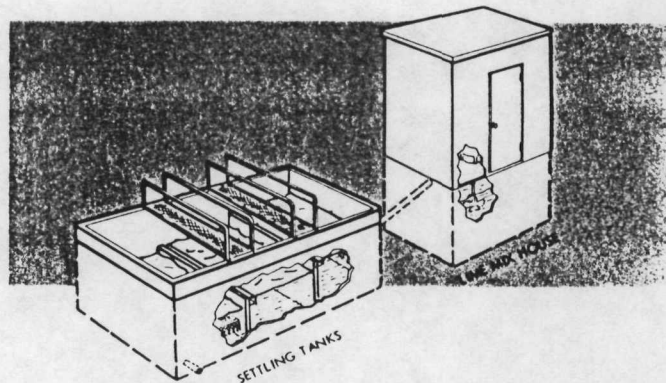


Semienclosed water recirculating system will reduce Hobart water requirements 50%.

At the time the original study was made, it was found that a tremendous amount of water was being used by the Westbrook plant for cooling of machinery. After an exhaustive study, a program was established to utilize a semiclosed water recirculating system. This alone will eliminate at least 50% of our present water requirements in the Westbrook plant.

As of this time, January 1, 1971, Hobart Brothers Company is in the final phase of the five-year program and anticipates it will be completed by the first quarter of 1971.

The final phases of the program will incorporate a central collection system for all wastes now generated in the Westbrook plant, and a three-tank treatment and settling system, which will allow Hobart Brothers Company the option of discharging directly into the hydraulic adjacent to the Westbrook plant or into the City of Troy's sanitary sewer system.



Clarifier used to separate suspended solids from liquids in the treatment of water.

The five-year program of eliminating all liquid pollutants from our manufacturing facilities has cost many thousand of dollars. However, Hobart Brothers Company feels that it is a leader in helping to eliminate pollution and is extremely proud of its efforts over the past five years to come up with systems which will allow all liquid discharge to meet the Ohio Water Pollution Control Board's standards.

Don Karnes

Don Karnes
Chief Engineer of Water Quality

